

Attorney Docket No. P12918

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

1-28. (Canceled)

29. (New) A method of controlling resources to avoid congestion in a cellular radio system having at least one mobile terminal connectable to a network via at least one base station, said method comprising the steps of:

receiving in the base station, an uplink signal sent from the mobile terminal, said base station receiving a plurality of different uplink signals due to different uplink radio paths between the mobile terminal and the base station;

deriving from the plurality of uplink signals received at the base station, a resulting signal corresponding to the uplink signal sent from the mobile terminal;

determining the importance of each received uplink signal to the resulting signal;

determining whether there is a shortage or a projected shortage of resources to handle current or projected traffic demand in the base station; and

if there is a shortage or a projected shortage of resources:

prioritizing downlink radio links from the base station to the mobile terminal according to the determined importance of each received uplink signal; and

freeing resources from lower priority downlink radio links to avoid congestion.

30. (New) The method of claim 29, wherein the step of freeing resources includes reducing transmit power on the lower priority downlink radio links.

31. (New) The method of claim 29, wherein the step of freeing resources includes removing at least one of the lower priority downlink radio links.

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32. (New) The method of claim 29, further comprising controlling signal processing resources in the base station according to the determined importance of each received uplink signal.

33. (New) The method of claim 29 or 32, wherein the steps of deriving a resulting signal and determining the importance of each received uplink signal to the resulting signal are performed in a node connected to the base station.

34. (New) The method of claim 33, further comprising the node informing the base station about the importance of each received uplink signal to the resulting signal.

35. (New) The method according to any one of the preceding claims, wherein the steps of prioritizing downlink radio links and freeing resources from lower priority downlink radio links are performed in the base station.

36. (New) The method according to any one of the preceding claims, wherein the step of freeing resources includes reallocating codes from removed lower priority downlink radio links if there is a shortage or projected shortage of codes.

37. (New) The method of claim 34, wherein the node informs the base station which codes utilized for downlink radio links are most important for a resulting signal in the mobile terminal, and wherein the step of prioritizing downlink radio links includes prioritizing the downlink radio links based on which codes utilized for downlink radio links are most important for the resulting signal in the mobile terminal.

38. (New) The method of claims 34-37, wherein the node places information about the importance of each received uplink signal in a header of a packet that is sent to the base station.

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39. (New) The method according to any one of the preceding claims, wherein the step of deriving a resulting signal corresponding to the uplink signal sent from the mobile terminal includes combining the different uplink signals into one signal.

40. (New) A device for controlling resources to avoid congestion in a cellular radio network having at least one mobile terminal connectable to at least one base station, and a node that connects the base station to the network, said device comprising:

means within the base station for receiving an uplink signal sent from the mobile terminal, said base station receiving a plurality of different uplink signals due to different uplink radio paths between the mobile terminal and the base station;

means for deriving from the plurality of uplink signals received at the base station, a resulting signal corresponding to the uplink signal sent from the mobile terminal;

means for determining the importance of each received uplink signal to the resulting signal;

means for determining whether there is a shortage or a projected shortage of resources to handle current or projected traffic demand in the base station;

means, responsive to a determination that there is a shortage or a projected shortage of resources, for prioritizing downlink radio links from the base station to the mobile terminal according to the determined importance of each received uplink signal; and

means, responsive to a determination that there is a shortage of resources, for freeing resources from lower priority downlink radio links to avoid congestion.

41. (New) The device of claim 40, wherein the means for freeing resources includes means for reducing transmit power on the lower priority downlink radio links.

42. (New) The device of claim 40, wherein the means for freeing resources includes means for removing at least one of the lower priority downlink radio links.

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43. (New) The device of claim 40, further comprising means within the base station for controlling base station signal processing resources according to the determined importance of each received uplink signal.

44. (New) The device of claim 40, wherein the means for deriving a resulting signal and the means for determining the importance of each received uplink signal to the resulting signal are located in the node connected to the base station.

45. (New) The device of claim 40, wherein the means for freeing resources includes means for reallocating codes from removed lower priority downlink radio links if there is a shortage or projected shortage of codes.

46. (New) The device of claim 45, wherein the node includes means for informing the base station which codes utilized for downlink radio links are most important for a resulting signal in the mobile terminal, and wherein the means for prioritizing downlink radio links includes means for prioritizing the downlink radio links based on which codes utilized for downlink radio links are most important for the resulting signal in the mobile terminal.

47. (New) The device according to any one of claims 40-46, wherein the node places information about the importance of each received uplink signal in a header of a packet that is sent to the base station.

48. (New) A mobile communication network that controls network resources to avoid congestion while communicating with at least one mobile terminal, said network comprising:

a plurality of base stations, each of which includes means for receiving an uplink signal sent from the mobile terminal, wherein each base station receives a different uplink signal due to different uplink radio paths between the mobile terminal and each base station;

a node connected to the plurality of base stations, said node including:

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means for deriving from the different uplink signals received at the plurality of base stations, a resulting signal corresponding to the uplink signal sent from the mobile terminal;

means for determining the importance of each received uplink signal to the resulting signal; and

means for communicating the importance of each received uplink signal to the plurality of base stations;

wherein each base station also includes:

means for determining whether there is a shortage or a projected shortage of base station resources to handle current or projected traffic demand;

means, responsive to a determination that there is a shortage or a projected shortage of base station resources, for prioritizing downlink radio links from the base station to the mobile terminal according to the determined importance of each received uplink signal; and

means, responsive to a determination that there is a shortage of base station resources, for freeing resources from lower priority downlink radio links to avoid congestion.

49. (New) A node in a cellular radio network for controlling network resources to avoid congestion, said node being connected to at least one base station that communicates with at least one mobile terminal, said node comprising:

means for receiving from the base station, a plurality of different uplink signals received from the mobile terminal, said different uplink signals being generated due to different uplink radio paths between the mobile terminal and the base station;

means for deriving from the plurality of uplink signals, a resulting signal corresponding to the uplink signal sent from the mobile terminal;

means for determining the importance of each received uplink signal to the resulting signal; and

means for sending to the base station, prioritization information regarding the importance of each received uplink signal;

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wherein the base station prioritizes downlink radio links from the base station to the mobile terminal according to the prioritization information received from the node, and frees resources from lower priority downlink radio links to avoid congestion.

50. (New) The node of claim 49, wherein the uplink signals include information about pilot signal measurements made in a plurality of mobile terminals, and the node also includes:

means for determining a quality of each downlink radio link based on the pilot signal measurements; and

means for prioritizing the downlink radio links based on the determined quality of each downlink radio link;

wherein the means for sending prioritization information to the base station also sends prioritization information regarding the quality of each downlink radio link.

51. (New) The node of claim 50, further comprising means for informing the base station which codes utilized for downlink radio links are most important for a resulting signal in the mobile terminal, and wherein the means for prioritizing downlink radio links includes means for prioritizing the downlink radio links based on which codes utilized for downlink radio links are most important for the resulting signal in the mobile terminal.

52. (New) The node of claim 49, wherein the means for sending prioritization information to the base station includes means for sending the prioritization information in a header of a packet that is sent to the base station.

53. (New) The node of claim 49, wherein the node is a Radio Network Controller.